

SCOPE OF ACCREDITATION TO ISO/IEC 17034:2016

ERA 16341 Table Mountain Parkway Golden, CO 80403

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REFERENCE MATERIAL PRODUCER

Valid To: September 30, 2022 Certificate Number: 1539.03

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this Reference Material Producer for the production of certified reference materials of the following categories:

Certified Reference Material	Class or Type of Reference Materials/Artifact or Matrix	Concentration Range ² (after dilution, if applicable)	Relative Uncertainty ¹ (Expanded)	Measurement Technique(s)
T				1.601
Environmental	Single and Multi-component			MPN
Reference Materials	microorganisms in			Membrane
	lyophilized pellets and in			Filtration
Waters	solution.			Pour Plate
				Presence/
Potable Water	Microbiology:			Absence
Routine Analytes		Presence/Absence,		
·	Total Coliforms	(20 – 2400) CFU/100 mL	(2 to 150) %	
Fresh Water	Fecal Coliforms	(20 – 2400) MPN/100 mL		
Routine Analytes	E.Coli			
•		Presence/Absence,		
Industrial Waste	Enterococci	(20 – 1000) CFU/100 mL		
Water Routine	Fecal Streptococci	(20 – 1000) MPN/100 mL		
Analytes		, , , , ,		
	Heterotrophic Plate Count	(5-500) CFU/mL		
	The state of the s	(5 - 500) MPN/mL		
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Certified Reference Material	Class or Type of Reference Materials/Artifact or Matrix	Concentration Range ² (after dilution, if applicable)	Relative Uncertainty ¹ (Expanded)	Measurement Technique(s)
Environmental Reference Materials Waters Potable Water Routine Analytes Trace Elements Organic Pollutants Other Analytes Industrial Waste Water Routine Analytes Trace Elements Organic Pollutants Organic Pollutants	Single and Multi-component organic and inorganic material in solution: Inorganic Chemistry Minerals Hardness Solids Anions/Cations Nutrients Oil & Grease (HEM/SGT-HEM) Demand Trace Metals	0.01 μg/L – 10 000 mg/L	(0.1 – 16) %	Titration IC ICP/OES ICP/MS CVAA Spectrophotometry Conductivity Nephelometry Gravimetric Volumetric Ion Selective Electrode
Other Analytes	Physical Properties / pH Color Turbidity Corrosivity UV254 Conductivity pH Settleable Solids	(10 – 500) PC, (0.5 – 4000) NTU (-4 – +4) SI (0.05 – 0.7) cm- ¹ (10 – 10,000) umhos/cm (2 – 12) S.U. (2 – 100) ml/L	(0.2 – 10) %	
Environmental Reference Materials Waters Potable Water Routine Analytes Trace Elements Reference Materials for Radioactivity	Single and Multi-component radionuclide material in solution: Radiochemistry Gross Alpha/Beta Alpha Emitters Beta Emitters Gamma Emitters	(1 – 50,000) pCi/L	(0.5 – 5) %	Alpha/Beta Liquid- Scintillation Gamma- Spectrometry Alpha- Spectrometry ICP/OES ICP/MS

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Environmental Reference Materials Soils and Sludges	Single and Multi-component organic and inorganic material on soil/sludge/oil and in solution. Inorganic Chemistry	(0.1 – 500,000)	(0.5 – 20) %	Titration IC ICP/OES ICP/MS
Trace Elements Mineral Content Trace Organics TCLP Leachate	Metals Anions Nutrients Cyanide	mg/kg	(0.3 – 20) %	CVAA Spectrophotometry Colorimetric Conductivity Gravimetric Ion Selective Electrode Closed-Cup LC/UV LC/FLUOR LC/MS LC/MS/MS GC/FID GC/MS GC/ECD GC/NPD
Organic Reference Materials	Physical Properties / pH Corrosivity (pH) Ignitability	(2 – 12) S.U. (100 – 200) °F	(0.2 – 30) %	
Petroleum Products Transformer Oils PCBs	Organic Chemistry Volatile Organic Compounds (VOCs) Nitroaromatics/Nitramines Polynuclear Aromatic Hydrocarbons (PAHs) Semi-Volatile Organic Compounds (SVOC) Per-and Polyfluoroalkyl Substances (PFAS) Glycols Organochlorine Pesticides (OCPs) Carbamate Pesticides Organophosphorus Pesticides (OPPs) Chlorinated Acid Herbicides Polychlorinated Biphenyls (PCBs) - Aroclors	1.0 µg/kg – 10,000 mg/kg	(0.4 – 30) %	
	Petroleum Hydrocarbons (TPH/DRO/GRO/VPH/EPH/ORO) Oil & Grease	(0.1 – 10,000) mg/kg	(0.5 – 30) %	
	TCLP Metals Volatiles Organic Compounds (VOCs) Semi-Volatile Organic Compounds (SVOC) Organochlorine Pesticides (OCPs)	(0.01 – 1000) mg/L	(0.5 – 25) %	



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Environmental	Single and Multi-component			Titration
Reference Materials	organic and inorganic material			IC
Health and Industrial Hygiene	on filter paper, on sorbent substance and in solution:	1 771 2000	(0.2, 15) 0/	ICP/OES ICP/MS CVAA
Materials on Filter Media	Inorganic Chemistry Metals (Filter) Particulate Matter (Filter) Metals (Impinger)	1 μg/Filter – 2000 mg/Filter (10 – 2000) mg/Filter (0.0005 – 2000) μg/ml	(0.2 –15) %	Spectrophotometry Colorimetric Conductivity Gravimetric
Trace Elements in Blank Filters	Particulate Matter (Impinger) Hydrogen Halides/Halogens Anions/Cations	(50 – 1000) mg/L (0.1 – 2500) mg/L (0.2 – 4000) mg/dscm		Ion Selective Electrode LC/UV
Reference Gases	Ammonia	(0.1 - 500) mg/L		LC/FLUOR
Gas Mixtures Trace Volatile Organic Compounds	Organic Chemistry Volatile Organic Compounds (Sorbent) Semi-Volatile Organic	0.01 µg/sample – 5000 µg/sample	(0.5 – 20) %	LC/MS GC/FID GC/MS GC/ECD
	Compounds (SVOC) Organochlorine Pesticides (OCPs) Polychlorinated Biphenyls (PCBs) - Aroclors Polynuclear Aromatic Hydrocarbons (PAHs) Aldehydes/Ketone			
Inorganic Reference Materials	Single and Multi-component organic and inorganic material in solution:			Titration IC ICP/OES
Pure Chemicals Primary Standards Working Standards Secondary Standards Chromatography Standards Pharmaceutical Materials	Metals/Inorganic Chemistry Trace Metals Anions/Cations/Cyanide Ions Nutrients Demand Solids Total Organic Carbon (TOC)	(0.001 – 20,000) mg/L	(0.1 –8) %	ICP/MS CVAA Spectrophotometr y Colorimetric Infrared Conductivity Gravimetric Ion Selective Electrode
Organic Reference Materials	Total Inorganic Carbon Total Organic Halides (TOX) Surfactants			Nephelometry
Pure Organic Compounds Pharmaceutical	Phenols Physical Properties / pH	(5 – 500,000) uS/cm	(0.2 – 5) %	
Materials Ion Activity	Conductivity Turbidity pH Buffers	(0.5 – 4000) NTU (2 – 12) S.U.		
pH Standards Ion Selective Electrode Calibrants Conductivity Standards Buffer Systems	Ultra-Pure Water Analytes Conductivity Total Organic Carbon Total Inorganic Carbon	(5 – 500,000) uS/cm (0.05 – 10,000) mg/L (0.05 – 10,000) mg/L	(0.1 – 5) %	



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Environmental	Single and Multi-component organic			Titration
Reference Materials	and inorganic material in solution:			
Environmental Reference Materials Waters Potable Water Routine Analytes Trace Elements Organic Pollutants Other Analytes Industrial Waste Water Routine Analytes Trace Elements Organic Pollutants Other Analytes	Single and Multi-component organic and inorganic material in solution: Miscellaneous Chemistry Cyanide Silica Surfactants Total Organic Halides Acidity Organic Carbon Chlorine Alkalinity Dissolved Oxygen Organic Chemistry Volatiles Organic Compounds (VOCs) Semi-Volatiles Organic Compounds (SVOCs) Per-and Polyfluoroalkyl Substances (PFAS) Polynuclear Aromatic Hydrocarbons (PAHs) Phenolics Organochlorine Pesticides (OCPs) Organonitrogen Pesticides (ONPs) Organophosphorus Pesticides (OPS) Triazine Pesticides Carbamate/Carbamoxyloxime Pesticides Polychlorinated Biphenyls (PCBs) - Aroclors Chlorinated Acid Herbicides Herbicides Haloacetic Acids Glycols Nitroaromatics/Nitramines Petroleum Hydrocarbons (TPH/DRO/GRO/PVOC/VPH/EPH)	1.0 μg/L – 10,000 mg/L 10 pg/L – 10,000 mg/L	(0.4 – 20) %	Titration IC ICP/OES ICP/MS CVAA Spectrophotomet ry Conductivity Nephelometry Gravimetric Ion Selective Electrode LC/UV LC/FLUOR LC/MS LC/MS/MS GC/FID GC/MS GC/ECD GC/NPD
	Disinfection By-Products Dioxin			

¹ Uncertainties for the certified values are available on the reference material producer's issued certificates for reference materials and certified reference materials. The uncertainty ranges stated above represent typical relative expanded uncertainties, where k approximates a 95% confidence interval for given analytes within their respective product/category or sub-category. As some categories encompass many different products, concentration ranges, matrices, technologies and analyte/properties, please contact ERA/Waters for product/lot specific Certificates of Analysis to obtain actual estimates of uncertainty.

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² This scope includes concentration ranges where applicable. Contact the reference material producer for certified values and other lot specific values.



Accredited Reference Material Producer

A2LA has accredited

ERAGolden, CO

This accreditation covers the specific materials listed on the agreed upon Scope of Accreditation.

This producer meets the requirements of ISO 17034:2016 General Requirements for the

Competence of Reference Material Producers. This accreditation demonstrates technical competence

for a defined scope and the operation of a quality management system.

SEAL 1978

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A2LA

Presented this 3rd day of December 2020.

Vice President, Accreditation Services

For the Accreditation Council Certificate Number 1539.03

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